

International Paper Co.  
601 E. Ball Rd.  
Anaheim, CA 92805  
ID: 157363

## **EQUIPMENT DESCRIPTION**

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
<b>Process 1: PAPER BOX MANUFACTURING</b>					
<b>System 1: MIXING SYSTEM</b>					
MIXER, NO. 1, STARCH, 400 GALS  A/N: 540114 (Previous A/N 491522)	D1			PM: (9) [RULE 405]	<b>B59.1</b> D323.1
TANK, HEATED, SURGE, NO.1, STARCH ADHESIVE, 1500 GALS  A/N: 540114 (Previous A/N 491522)	D2				
TANK, HEATED, SURGE, NO. 2, STARCH ADHESIVE, 1500 GALS  A/N: 540114 (Previous A/N 491522)	D3				
TANK, HEATED, SURGE, NO. 3, STARCH ADHESIVE, 1500 GALS  A/N: 540114 (Previous A/N 491522)	D4				
TANK, HEATED, SURGE, NO. 4, STARCH ADHESIVE, 1500 GALS  A/N: 540114 (Previous A/N 491522)	D5				
COATER, CORRUGATOR, NO. 1, UNITED MACHINERY, 98 IN. WIDTH  A/N: 540114 (Previous A/N 491522)	D42			ROG: (9) [RULE 1128; RULE 1168; RULE 1171]	A63.3 <b>B59.1</b> B89.3 K67.2

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**Checked by**
**Date** 10/23/2013

COATER, CORRUGATOR, NO. 2, UNITED MACHINERY, 98 IN. WIDTH  A/N: 540114 (Previous A/N 491522)	D43			ROG: (9) [RULE 1128; RULE 1168; RULE 1171]	A63.3 <b>B59.1</b> B89.3 K67.2
<b>System 3: PRINTING SYSTEM</b>					S2.1, S13.1
PRINTING PRESS, FLEXOGRAPHIC, NO. 13  A/N: 540107 (Previous A/N 491514)	D17			ROG: (9) [RULE 1130, RULE 1171]	<b>B59.2</b> <del>B59.3</del>
PRINTING PRESS, FLEXOGRAPHIC, NO. 11  A/N: 540108 (Previous A/N 491523)	D40			ROG: (9) [RULE 1130, RULE 1171]	A63.2 <b>B59.2</b> <del>B59.3</del> B89.2
PRINTING PRESS, AIR DRIED, UNITED, MODEL CLW GRAPHIXMASTER, 3-COLOR, 66" SHEET WIDTH  A/N: 540110 (Previous A/N 491520)	D51			ROG: (9) [RULE 1130, RULE 1171]	<b>B59.2</b>
PRINTING PRESS, FLEXOGRAPHIC, UNITED, MODEL GRAPHIXMASTER, 4-COLOR, 66" SHEET WIDTH  A/N: 540111 (Previous A/N 491517)	D52			ROG: (9) [RULE 1130, RULE 1171]	<b>B59.2</b> <del>B59.5</del> B89.4
PRINTING PRESS, FLEXOGRAPHIC, HAMADA, MODEL MINERVA-M FFG, SERIAL NO. RA-160, THREE COLOR, 98 INCH SHEET WIDTH, AIR DRIED  A/N: 540112 (Previous A/N 491525)	D54			ROG: (9) [RULE 1130, RULE 1171]	<b>B59.2</b> <del>B59.6</del> B89.4
PRINTING PRESS, FLEXOGRAPHIC, UNITED, MODEL NO. UNITED 50X115 ROBOTIX, TWO COLOR, SHEET FED, 115 IN. WIDTH, AIR DRIED WITH GLUER  A/N 540113 (Previous A/N 491524)	D55			ROG: (9) [RULE 1130, RULE 1171]	A63.2 <b>B59.2</b> <del>B59.7</del> B89.4

A/N 540105

RECLAIM/TITLE V REVISION APPLICATION, DE MINIMIS SIGNIFICANT

## **BACKGROUND**

International Paper Co. submitted A/N 540114 to change condition no. B59.1 on device nos. D42 and D43 (cardboard corrugators). Condition no. B59.1 restricts the use of materials containing Rule 1401 contaminants with the exception of acetaldehyde, formaldehyde and methanol. The condition also has annual emission limits for these contaminants. The company no longer uses materials which contain these contaminants but instead, uses a caustic solution that contains sodium hydroxide. The caustic solution is mixed in device no. D1 (mixer) with starch, borax and various additives to make a starch adhesive that is used to make corrugated cardboard in the corrugators. Sodium hydroxide is the only toxic air contaminant found in the materials that are used in the mixer and corrugators. The amount of sodium hydroxide emitted from the corrugators does not pose a health hazard risk and an annual emission limit is not necessary (see RISK ASSESSMENT section below). Below are the changes made to condition no. B59.1 (the condition is attached to device nos. D1, D42 and D43).

### **B59.1 (Previous condition, to be revised):**

THE OPERATOR SHALL NOT USE THE FOLLOWING MATERIAL(S) IN THIS DEVICE:

Materials containing any of the compounds identified in the SCAQMD Rule 1401, except acetaldehyde, formaldehyde and methanol, as amended on May 2, 2003 or earlier.

Emissions of acetaldehyde shall not exceed 37 lbs in any one year.

Emissions of formaldehyde shall not exceed 4,168 lbs in any one year.

Emissions of methanol shall not exceed 1,166 lbs in any one year.

Emission records from these compounds shall be kept in a manner approved by the District, shall be retained at the facility for 5 years and shall be made available to District personnel upon request.

### **B59.1 (New condition):**

THE OPERATOR SHALL NOT USE THE FOLLOWING MATERIAL(S) IN THIS DEVICE:

Materials containing any of the compounds identified in the SCAQMD Rule 1401, except sodium hydroxide, as amended on September 10, 2010 or earlier.

International Paper Co. also submitted applications to change the Rule 1401 conditions for several printing presses. The presses have different Rule 1401 conditions listing different contaminants and effective dates, see table below. The materials used in the presses contain different toxic air contaminants than those listed in the conditions. Materials used in the presses only contain ammonia, acrylic acid, isopropyl alcohol and styrene. The following

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condition (B59.2) will be used for the presses:

**B59.2 (New):**

THE OPERATOR SHALL NOT USE THE FOLLOWING MATERIAL(S) IN THIS DEVICE:

Materials containing any of the compounds identified in the SCAQMD Rule 1401, except ammonia, acrylic acid, isopropyl alcohol and styrene, as amended on September 10, 2010 or earlier.

**Current Rule 1401 Conditions:**

<b>A/N</b>	<b>Equipment</b>	<b>Device No.</b>	<b>R1401 Condition</b>
540107	PRINTING PRESS, FLEXOGRAPHIC, NO. 13	D17	B59.3
540108	PRINTING PRESS, FLEXOGRAPHIC, NO. 11	D40	B59.3
540110	PRINTING PRESS, AIR DRIED	D51	B59.4 (P/C)
540111	PRINTING PRESS, FLEXOGRAPHIC	D52	B59.5
540112	PRINTING PRESS, FLEXOGRAPHIC	D54	B59.6
540113	PRINTING PRESS, FLEXOGRAPHIC	D55	B59.7

International Paper Co. is a Title V facility. A Title V renewal permit was issued to this facility on 5/11/2010. International Paper Co. has proposed to revise their Title V permit with application nos. 540107, 540108, 540110, 540111, 540112, 540113 and 540114 by changing the conditions on device nos. D1, D17, D40, D42, D43, D51, D52, D54 and D55. This permit revision is considered as a “de minimis significant permit revision” to the renewal Title V permit, as described in the Regulation XXX evaluation. This is the second revision since the last renewal.

The facility was last inspected on 4/12/2013 and was found to be operating in compliance. During the last two years, one NC (E14493) was issued to the company for a few minor infractions. The company has resolved the issues of the NC and is in compliance.

## **PROCESS DESCRIPTION**

International Paper Co. manufactures corrugated sheets for the construction of cardboard boxes used for consumer packaging. They manufacture a variety of boxes ranging from food boxes to dry goods boxes. The facility has not received an N/C or NOV within the last two years. International Paper Co. operates up to 24 hrs/day, 5 days/wk.

## **EMISSION ESTIMATES**

The equipment will be operated as before, without any changes. Emission estimates remain unchanged from the previous applications. All printing presses operate under a system condition (S2.1) of 1,500 lb VOC/mon. This limit was established (A/N 297321) from Community Bank allocations and reported emissions. NSR entries were made under A/Ns 252356, 252357 and 252358 for 1 lb/day/app and under A/Ns 255011, 255012, 255013 and

255014 for 7 lb/day/app.

**Flexos (See A/N 540107 for NSR summary table for 30-day emission updates.):**

A/N 540107 (Previous A/N 491514) – D17:

Hourly ROG emissions = 0.04 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 0.96 lb/day (NSR)

A/N 540108 (Previous A/N 491523) – D40:

Hourly ROG emissions = 0.85 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 20.4 lb/day (NSR)

A/N 540110 (Previous A/N 491520) – D51:

Hourly ROG emissions = 0.63 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 15.1 lb/day (NSR)

A/N 540111 (Previous A/N 491517) – D52:

Hourly ROG emissions = 0.88 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 21.1 lb/day (NSR)

30-Day = 1 lb/day

A/N 540112 (Previous A/N 491525) – D54:

Hourly ROG emissions = 0.17 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 4.1 lb/day (NSR)

A/N 540113 (Previous A/N 491524 – D55:

Hourly ROG emissions = 1.25 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 30.0 lb/day (NSR)

**Mixing System (corrugators):**

A/N 540114 (Previous A/N 491522) – D1, D2, D3, D4, D42 & D43:

Hourly ROG emissions = 3.8 lb/hr (AEIS & NSR)

Daily ROG emissions (maximum) = 91.2 lb/day (NSR)

30-Day = 80 lb/day

## **RISK ASSESSMENT**

**A/N 540114:**

The mixer is used to make the starch adhesive and the corrugators use the starch to construct boxes from corrugated paper. The starch adhesive is composed of water, starch, borax, additives and a caustic solution. A batch weighs 2,775 pounds and a maximum of 18 batches are processed in a day. The recipe for the batch is tabulated below:

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Material	Weight Added (lb)	Wt. %
Water	1,934	69.69%
Starch	737	26.56%
Borax (5 M)	6	0.22%
Borax (10 M)	4	0.14%
Additive 1 (Aquaseal Resin)	35	1.26%
Additive 2 (Liquibond Blue)	30	1.08%
50% Caustic	29	1.05%
Total Batch Weight	2,775	100.00%

Sodium hydroxide is the sole Rule 1401 contaminant (acute) found in the starch adhesive. As the materials of the batch are fed into the mixer, sodium hydroxide and borax help lower the gel point of the starch which leads to the first steps of starch gelatinization. Once the mixing is complete, sodium hydroxide is consumed and is made part of the adhesive. When the starch adhesive is processed through the corrugators, it is assumed that there is minimal sodium hydroxide emissions, thus, for emissions purposes, sodium hydroxide is emitted from the mixer. Vaporous emissions from the mixer were calculated using the filling loss equation. A Tier 2 Risk Assessment was performed and the acute health hazard risk was found to be well below one. (See A/N 540107 for spreadsheets).

$$\text{Emissions} = \frac{2.4 * M * P * V * N * K}{100,000 * C}$$

Where,

M = Molecular weight, 40

P = Vapor pressure, 0.00619 psia (0.32 mm Hg)

V = Tank volume, 400 gal

N = Turnover, 18 batches/day

K and C are constants, 1

$$\text{Emissions} = \frac{2.4 * 40 * 0.00619 * 400 * 18 * 1}{100,000 * 1}$$

Emissions = 0.0428 lb/day

Hourly emissions = 0.0428 lb/day ÷ 24 hr/day = 0.0018 lb/hr

Annual emissions = 0.0428 lb/day x 365 day/yr = 15.62 lb/yr

**A/N 540107, 540108, 540110, 540111, 540112 & 540113:**

Four Rule 1401 toxic air contaminants, ammonia, acrylic acid, isopropyl alcohol and styrene, are emitted from the materials that are used in the presses. The contaminants are acute and/or chronic but not carcinogenic. Three specific inks contain the contaminants. Risk assessments

were performed for each ink to determine maximum health hazard risks. Maximum acrylic acid and styrene emissions are from using the epic white ink, maximum IPA emissions are from the magnum black ink and maximum ammonia emissions are from the epic gold ink. The assessment was originally based on nine presses but since only six presses will have the new Rule 1401 condition, the monthly throughput is reduced by 6/9. The risks were based on a maximum operating schedule of 24 hr/day, 7 day/wk and 52 wk/yr, a residential receptor distance of 100 m and a commercial receptor distance of 25 m. The following results illustrates that the acute and chronic health hazard risks are well below one. Risk assessment spreadsheets are included in A/N 540107.

### Epic White:

This ink has the lowest VOC content. Since the acrylic acid and styrene contents are given as a percentage of the amount used, this ink would lead to the highest usage and highest acrylic acid and styrene emissions.

VOC content = 0.03% by weight

Max. monthly throughput = 5,000,000 lb \* 6/9 = 3,333,333 lb

TAC	Content	Max Monthly Emissions (lb)	Max Daily Emissions (lb)	Max Hourly Emissions (lb)	Emissions (lb/hr/press)
Acrylic Acid	100 ppmw*	333	11.1	0.46	<b>0.077</b>
Styrene	100 ppmw*	333	11.1	0.46	<b>0.077</b>
Ammonia (as ammonium hydroxide, mole ratio 17/35)	0.07% by wt.	1,133	37.8	1.58	<b>0.26</b>

\* Maximum amounts, supplied by ink supplier.

Tier 1 Results	
Cancer/Chronic ASI	Acute ASI
3.66E-01	1.96E-01
<b>PASSED</b>	<b>PASSED</b>

### Magnum Black:

This ink contains a small amount of IPA, ranging from 1 to 5% by weight. The risk was based on 5% by wt. for IPA.

VOC content = 2.16% by weight

Max. monthly throughput 69,444 lb \* 6/9 = 46,296 lb

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TAC	Content	Max Monthly Emissions (lb)	Max Daily Emissions (lb)	Max Hourly Emissions (lb)	Emissions (lb/hr/press)
Acrylic Acid	100 ppmw*	4.63	0.15	0.0063	<b>0.0001</b>
Styrene	100 ppmw*	4.63	0.15	0.0063	<b>0.0001</b>
IPA	5% by wt.	2,315	77.2	3.22	<b>0.54</b>
Ammonia (as ammonium hydroxide, mole ratio 17/35)	3% by wt.	675	22.5	0.94	<b>0.16</b>

\* Maximum amounts, supplied by ink supplier.

Tier 1 Results	
Cancer/Chronic ASI	Acute ASI
2.32E-01	4.38E-01
<b>PASSED</b>	<b>PASSED</b>

**Epic Gold:**

This ink represents maximum ammonia emissions (1.07% by wt.).

VOC content = 0.15% by weight

Max. monthly throughput 1,000,000 lb \* 6/9 = 666,666 lb

TAC	Content	Max Monthly Emissions (lb)	Max Daily Emissions (lb)	Max Hourly Emissions (lb)	Emissions (lb/hr/press)
Acrylic Acid	100 ppmw*	66.7	2.2	0.092	<b>0.015</b>
Styrene	100 ppmw*	66.7	2.2	0.092	<b>0.015</b>
Ammonia (as ammonium hydroxide, mole ratio 17/35)	1.07% by wt.	3,465	115.5	4.81	<b>0.8</b>

\* Maximum amounts, supplied by ink supplier.

**Tier 2 Results:**

Target Organ	Acute	Chronic	Acute Pass/Fail	Chronic Pass/Fail
Alimentary system (liver) - AL			Pass	Pass
Bones and teeth - BN			Pass	Pass
Cardiovascular system - CV			Pass	Pass
Developmental - DEV			Pass	Pass
Endocrine system - END			Pass	Pass
Eye	1.39E-01		Pass	Pass
Hematopoietic system - HEM			Pass	Pass
Immune system - IMM			Pass	Pass



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Kidney - KID			Pass	Pass
Nervous system - NS		5.37E-04	Pass	Pass
Reproductive system - REP			Pass	Pass
Respiratory system - RES	1.39E-01	1.29E-01	Pass	Pass
Skin			Pass	Pass

## **RULE ANALYSIS**

Rule 212 (c)(1): This section requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school. The facility is not located within 1,000 feet of the outer boundary of a school. The closest school, Jefferson Thomas Elementary School, located to the emission source is 0.4 miles away. A public notice is not required per this section.

Rule 212 (c)(2): This section requires a public notice for all new or modified facilities that have on-site emission increases exceeding any of the daily maximums as specified by Rule 212(g). There is not an emission increase from this project, the flexo presses will continue to operate under the existing group cap of 1,500 lb/month. A public notice is not required per this section.

Rule 212(c)(3): This section requires a public notice for any new or modified permit unit with an increase in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in an MICR greater than 1E-6 per permit unit or greater than 10E-6 per facility. There is not a cancer risk equal or greater than one in a million since none of the TACs are carcinogenic. A public notice is not required per this section.

Rule 212(g): This section requires a public notice for all new or modified sources that result in emission increases exceeding any of the daily maximums specified by Rule 212(g). There is not an emission increase from this project. Daily maximums of this section are not exceeded. A public notice is not required per this section.

Rules 401 and 402: AQMD database has no records of visible emissions or nuisance complaints against this facility ever. Compliance with these requirements is expected with the proper operation of the equipment.

Rules 1128, 1168 and 1171: The company will continue operating the corrugators in compliance with these applicable rules. No change in operating the corrugators.

Rules 1130 and 1171: The company will continue operating the presses in compliance with these applicable rules. No change in operating the presses.

REG XIII: The company submitted applications to change Rule 1401 conditions for a mixer, corrugators and printing presses. The equipment will operate under existing throughput and emission limits. The change does not lead to an increase in criteria pollutants. BACT is not triggered, offsets and modeling are not required.

Rule 1401: Applications were submitted to change Rule 1401 conditions on the permits for the cardboard paper line (mixer and corrugators) and printing presses. Materials used in these equipment have changed and subsequently the toxic air contaminants have changed as well. Sodium hydroxide is the sole contaminant that is emitted from operating the mixer and corrugators while ammonia, acrylic acid, isopropyl alcohol and styrene are emitted from the printing presses. Maximum emissions of these contaminants were determined as well as corresponding health risks. The acute and chronic health hazard risks for all contaminants are well below one. (See A/N 540107 for Risk Assessment spreadsheets.) The proposed project complies with this rule.

### **REGULATION XXX:**

This facility is in the NO<sub>x</sub> RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or hazardous air pollutants (HAPs), and a “minor permit revision” for RECLAIM pollutants to the RECLAIM/Title V permit for this facility.

#### **Non-RECLAIM Pollutants or HAPs**

Rule 3000(b)(7) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or HAPs from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

<b>Air Contaminant</b>	<b>Daily Maximum (lbs/day)</b>
HAP	30
VOC	30
NO <sub>x</sub> *	40
PM <sub>10</sub>	30
SO <sub>x</sub> *	60
CO	220

\* Not applicable if this is a RECLAIM pollutant

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To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project

is the 2<sup>nd</sup> permit revision to the Title V renewal permit issued to this facility on May 11, 2010. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

<b>Revision</b>	<b>HAP</b>	<b>VOC</b>	<b>NOx</b>	<b>PM10</b>	<b>SOx</b>	<b>CO</b>
1 <sup>st</sup> Permit Revision: Correct permit wording (device no. D27)	0	0	0	0	0	0
2 <sup>nd</sup> Permit Revision: Change of condition for device nos. D1, D17, D40, D42, D43, D51, D52, D54 and D55.	0	0	0	0	0	0
Cumulative Emissions Total	0	0	0	0	0	0
Maximum Daily	30	30	40	30	60	220

## **RECOMMENDATION**

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision”, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to the EPA for a 45-day review pursuant to Rule 3003(j). If the EPA does not raise any objections within the review period, a revised Title V permit will be issued to this facility.